

15.4 Application of Double Integrals

◎ 多選擇題

1. Let $f(x, y) = \begin{cases} \frac{xy}{x^2+y^2} & \text{if } (x, y) \neq (0, 0), \\ 0 & \text{if } (x, y) = (0, 0), \end{cases}$ and $B = \{(x, y) \mid x^2 + y^2 \leq 1\}$.

Which of the following statements are **true** ?

- (A) f is continuous; (B) $f_x(0, 0)$ exists;
(C) f is differentiable; (D) $\iint_B f(x, y) \, dA = 0$.

Ans: BD [102 學年度]

◎ 填充題

1. Let $D = \{(x, y) \mid x^2 + y^2 \leq 3, y \geq 0\}$ be a lamina with density $\rho(x, y) = y$. Then,

the center of mass $(\bar{x}, \bar{y}) = \underline{\hspace{2cm}}$.

Ans: $\left(0, \frac{3\sqrt{3}\pi}{16}\right)$ [100 學年度]